

Date: Fri, 4 Mar 94 19:11:09 PST  
From: Info-Hams Mailing List and Newsgroup <info-hams@ucsd.edu>  
Errors-To: Info-Hams-Errors@UCSD.Edu  
Reply-To: Info-Hams@UCSD.Edu  
Precedence: Bulk  
Subject: Info-Hams Digest V94 #239  
To: Info-Hams

Info-Hams Digest                      Fri, 4 Mar 94                      Volume 94 : Issue 239

Today's Topics:

Amateur Radio: Changes to Elmers Resource Directory  
Amateur Radio: Elmers List Info and Administrivia  
ORBS\$063.2L.AMSAT  
ORBS\$063.MICRO.AMSAT  
ORBS\$063.WEATH.AMSAT  
second letter

Send Replies or notes for publication to: <Info-Hams@UCSD.Edu>  
Send subscription requests to: <Info-Hams-REQUEST@UCSD.Edu>  
Problems you can't solve otherwise to brian@ucsd.edu.

Archives of past issues of the Info-Hams Digest are available  
(by FTP only) from UCSD.Edu in directory "mailarchives/info-hams".

We trust that readers are intelligent enough to realize that all text  
herein consists of personal comments and does not represent the official  
policies or positions of any party. Your mileage may vary. So there.

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Date: 1 Mar 94 12:09:17 GMT  
From: nprdc!ihnp4.ucsd.edu!swrinde!gatech!news.byu.edu!news.mtholyoke.edu!  
news.unomaha.edu!news@network.ucsd.edu  
Subject: Amateur Radio: Changes to Elmers Resource Directory  
To: info-hams@ucsd.edu

Posted-By: auto-faq 3.2.1.2  
Archive-name: radio/ham-radio/elmers/diff

(Note: This diff file is taken from the list body only.)

/usr/bin/diff -c (last month's) (this month's)

\*\*\* /u3/pschleck/faq/elmers/list.body.old Tue Feb 1 06:02:45 1994  
--- /u3/pschleck/faq/elmers/list.body.new Tue Mar 1 06:00:04 1994  
\*\*\*\*\*  
\*\*\* 1,4 \*\*\*\*

! Amateur Radio Elmers Resource Directory (as of 02/01/94)  
+++++

David Andrews ZL2SX

--- 1,4 ---

! Amateur Radio Elmers Resource Directory (as of 03/01/94)  
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David Andrews ZL2SX

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73, Paul W. Schleck, KD3FU

pschleck@unomaha.edu (personal mail)  
elmers-request@unomaha.edu (Elmers List administrivia)

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Date: 1 Mar 94 12:00:13 GMT  
From: nprdc!ihnp4.ucsd.edu!swrinde!gatech!news.byu.edu!news.mtholyoke.edu!  
news.unomaha.edu!news@network.ucsd.edu  
Subject: Amateur Radio: Elmers List Info and Administrivia  
To: info-hams@ucsd.edu

Posted-By: auto-faq 3.2.1.2  
Archive-name: radio/ham-radio/elmers/admin  
Revision: 1.6 12/26/93 15:45:09  
Changes: Added new index file, Gopher, WWW, and WAIS entries

This administrivia file and the companion Amateur Radio Elmers Resource Directory are intended for non-commercial distribution via Usenet. Any other uses, please E-mail for permission.

A Brief Historical Overview:  
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If there is any one constant in the changing state of the communications art, it is that "Hams" (Amateur Radio Operators) have always been on the forefront of it. Rumors abound where the term "Ham" came from. Some of the more amusing are described at the end of this article.

Regardless of origin of the name, a "Ham" is universally recognizable as one who experiments in radio and communications.

Whether it be constructing a low-power CW radio with vacuum tubes, or designing TCP/IP packet networks, such experimentation has historically spilled over into the mainstream such as was the case with Edwin Armstrong, who developed the regenerative oscillator and FM radio, or

General Curtis LeMay (W6EZV) who was instrumental in making Single-Sideband the communications standard for the Strategic Air Command (1947-1992, now reorganized into a joint command called USSTRATCOM) and eventually the U.S. Air Force. Although packet-switching techniques originated from DARPA (Defense Advanced Research Projects Agency) and the ARPANet, no one can deny the tremendous influence that amateurs have had in demonstrating the viability of TCP/IP and AX.25 communications via radio links. The efforts of AMSAT (the Amateur Satellite Corporation), including the development of many ham satellites and the low-orbiting Microsats (communications satellites no bigger than a breadbox that use store-and forward packet techniques), have certainly advanced the state-of-the-art in communications, one of the defined purposes of the Amateur Radio Service, as recognized by international treaty.

Since in many cases hams are writing "the book", there is often no "book" or other established reference for a beginner to refer to. Traditionally, information has been passed on from ham to ham via word-of-mouth. Like many of the traditional crafts, a variation of the Master-Apprentice system has emerged, the Elmer-Novice relationship. Called "Elmers" because they are usually older and wiser, having the benefit of many years in the hobby, including several failed projects, and an electric shock or two, they have traditionally been the mainstay of amateur radio, and the source of many new hams, particularly those interested in working on emerging technologies.

Even more importantly, Elmers provided an outlet for the impatient newcomer who wanted "to know everything, and right away." Faced with such a request, a good Elmer will smile and proceed to lead the novice through some project or operating experience. Several hours, days, or weeks later, the novice would have his answers, but would have earned them. Even better, the sense of accomplishment would boost the novice's confidence and nudge him or her down the road to being a model, experienced ham operator.

Many present hams feel that such an experience is missing today. In today's hustle-bustle world, the response to such natural curiosity and desire to learn is, more often than not, "I'm too busy" or "RTFM." As a result, the quality of new hams declines and the knowledge and operating habits they develop in their first formative months and years leave much to be desired. And the very same hams who claim that they "can't understand the new generation" also, in almost the same breath, lament about the "decline of amateur radio."

What is an Elmer today?  
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An Elmer today is of any age, male or female, who has some expertise and

is willing to share it with beginners. Elmers don't even need to be licensed amateurs, just people with knowledge in some area of electronics or communications technology.

What is a Usenet Elmer?

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With the ever-widening scope of the Internet, and the amateur radio newsgroups on Usenet, the potential for Elmers to share their knowledge to a wide audience has never been greater. To that end, I have started to maintain a list of such Elmers. Volunteers need only send me their name, E-mail address, and area of expertise. I have set up an administrivia mailbox for this purpose (elmers-request@unomaha.edu, the default Reply-To: of this message).

Those desiring a more extensive list, or who need more specific assistance, are encouraged to contact Rosalie White, WA1ST0, Educational Services Manager at the American Radio Relay League, 225 Main St., Newington, CT 06111 or via electronic mail addressed to rwhite@arrl.org.

How may I obtain the latest copy of the Elmers List?

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There are currently 7 ways of obtaining the Elmers List. Any site at least reachable by Internet E-mail can use options 3 or 4:

1. Usenet News: The latest copy of the list can be found in the companion posting to this message, "Amateur Radio: Elmers Resource Directory." Since the list is cross-posted to rec.radio.amateur.misc, rec.radio.info, rec.answers, and news.answers on the 1st of each month, with an expiration date 6 weeks into the future, there should always be a copy available at most news sites. Check your newsreader documentation for information about reading previously-read articles.

2. Anonymous FTP: If your site is directly connected to the Internet, you may retrieve the latest copy via File Transfer Protocol (FTP) from the following sites:

ftp.cs.buffalo.edu /pub/ham-radio/elmers\*  
rtfm.mit.edu /pub/usenet/news.answers/radio/ham-radio/elmers/\*

3. Mailing-List: Since the list is cross-posted to rec.radio.info, the latest copy may be obtained from the mailing-list gateway for that newsgroup (along with many other informational articles about radio) when it is published each month. To subscribe, send E-mail to:

listserv@ucsd.edu

and in the BODY (not the Subject) of the message, write:

subscribe radio-info

The server may not be able to determine your return address. In that case write:

subscribe radio-info (your E-mail address)

You should get an acknowledgement very shortly.

4. Mail-Server: If you don't want to read through the entire gateway of rec.radio.info, or want a copy of the list right away, send E-mail to:

mail-server@rtfm.mit.edu

and in the BODY (not the Subject) of the message, write:

send usenet/news.answers/radio/ham-radio/elmers/admin  
send usenet/news.answers/radio/ham-radio/elmers/index  
send usenet/news.answers/radio/ham-radio/elmers/list  
send usenet/news.answers/radio/ham-radio/elmers/diff

and the latest copy of the list should be sent to you E-mail within 24 hours (the mail-server uses batch priority to reduce system demand).

The last three services are experimental. I'm not terribly familiar with them, and cannot offer much technical support regarding their use. (I'd appreciate feedback on whether or not you find them useful, though.)

5. Internet Gopher: The latest copy of the list should be available from the following Gopher sites, all at standard port 70:

cc1.kuleuven.ac.be  
jupiter.sun.csd.unb.ca  
gopher.univ-lyon1.fr  
ftp.win.tue.nl  
gopher.win.tue.nl

see also comp.infosystems.gopher

6. World-Wide Web (WWW): The latest copy of the list should be available from the following WWW site:

URL: <http://www.cis.ohio-state.edu:80/hypertext/faq/usenet>

under pages:

radio/ham-radio/elmers/admin  
radio/ham-radio/elmers/index  
radio/ham-radio/elmers/list  
radio/ham-radio/elmers/diff

see also comp.infosystems.www

7. Wide-Area Information Service (WAIS): The latest copy of the list should be available from the WAIS server at rtfm.mit.edu (standard port 210) in database "usenet."

see also comp.infosystems.wais

How may I contribute to the Elmers List?

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By using this resource, you are benefitting the net by obtaining assistance in the fastest and most efficient way possible. By volunteering to appear on this list, you are contributing to the good reputation of the radio-related newsgroups.

Thanks to all the volunteer Elmers, as well as courteous list users, for making this service a success.

--

73, Paul W. Schleck, KD3FU

pschleck@unomaha.edu (personal mail)

elmers-request@unomaha.edu (Elmers List administrivia)

\* Possible origins of the word HAM:

The acronym "Home Amateur Mechanic" or...

from the Cockney pronunciation of "L'amateur" or...

the initials of the founder of the American Radio Relay League, Hiram Maxim, W1AW (his actual middle name being Percy apparently notwithstanding) or...

from the call letters of one of the first amateur stations at Harvard, H.A.M. (please, no flames from W1XM at MIT)

Dale Mosby, N7PEX, offers the explanation that HAM must stand for "Hardly Any Money," considering the investment one could make in the hobby.

Knowledgeable individuals from the American Radio Relay League (ARRL), and other radio historians, seem to agree that the terms "Ham" and "Lid" (an inept operator) both originated with landline telegraphy. A "Ham" was a show-off and a "Lid" was a telegraph operator so inexperienced, he had to use a pot or can lid to rest his telegraph sounder on to properly copy the code.

As an interesting historical footnote, early telegraph operators may have been the first to experience the infamous curse of our communications age, Repetitive Stress (or "Carpal Tunnel") Syndrome (called "Glass Arm" in those days, which encouraged the invention of the semi-automatic or "bug" key).

(Larry E. McDonald, N6ZMB, wrote to point out another plausible origin, which doesn't necessarily contradict the ARRL version. The term "ham" may have been derived from "ham-fisted" or "ham-handed" to describe poor telegraph operators who were hired from the ranks of radio operators. Or maybe "ham-fisted" and "ham-handed" are derived from "ham." Who knows?)

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Date: 4 Mar 94 13:46:00 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: ORBS\$063.2L.AMSAT  
To: info-hams@ucsd.edu

SB KEPS @ AMSAT \$ORBS-063.N  
2Line Orbital Elements 063.AMSAT

HR AMSAT ORBITAL ELEMENTS FOR AMATEUR SATELLITES IN NASA FORMAT  
FROM WA5QGD FORT WORTH,TX March 4, 1994  
BID: \$ORBS-063.N

DECODE 2-LINE ELSETS WITH THE FOLLOWING KEY:  
1 AAAAAU 00 0 0 BBBBB.BBBBBBBB .CCCCCCCC 00000-0 00000-0 0 DDDZ  
2 AAAAA EEE.EEEE FFF.FFFF GGGGGG HHH.HHHH III.IIII JJ.JJJJJJJKKKKKZ  
KEY: A-CATALOGNUM B-EPOCHTIME C-DECAY D-ELSETNUM E-INCLINATION F-RAAN  
G-ECCENTRICITY H-ARGPERIGEE I-MNANOM J-MNMOTION K-ORBITNUM Z-CHECKSUM

TO ALL RADIO AMATEURS BT

AO-10  
1 14129U 83058 B 94059.96429348 .00000264 00000-0 99999-4 0 2649  
2 14129 027.2018 339.3804 6027104 158.3802 245.0891 02.05875835 80556  
UO-11  
1 14781U 84021B 94044.54889300 .00000363 00000-0 69607-4 0 6647

2 14781 97.7907 65.0254 0011279 310.7761 49.2455 14.69144313532150  
 RS-10/11  
 1 18129U 87054 A 94061.03883249 -.000000006 00000-0 00000 0 0 8773  
 2 18129 082.9217 048.0362 0011441 326.6023 033.4997 13.72331967335219  
 A0-13  
 1 19216U 88051 B 94060.48894014 .000000288 00000-0 14661-1 0 8882  
 2 19216 057.8304 265.6507 7212956 335.3196 002.8602 02.09730422 43757  
 F0-20  
 1 20480U 90013C 94046.42832899 -.000000014 00000-0 49346-4 0 6594  
 2 20480 99.0216 221.3367 0539917 255.4010 98.6634 12.83223845188515  
 A0-21  
 1 21087U 91006 A 94060.95526134 -.000000022 00000-0 00000 0 0 4391  
 2 21087 082.9416 222.0498 0035939 023.9104 336.4239 13.74533695154854  
 RS-12/13  
 1 21089U 91007A 94044.66379265 .000000043 00000-0 29527-4 0 6625  
 2 21089 82.9220 103.0678 0030946 91.8517 268.6203 13.74034946151682  
 ARSENE  
 1 22654U 93031B 93338.80803910 -.000000087 00000-0 00000 0 0 2437  
 2 22654 1.4104 113.5274 2936576 161.9838 210.8642 1.42202044 2990  
 U0-14  
 1 20437U 90005B 94046.18347456 .000000060 00000-0 40471-4 0 9649  
 2 20437 98.5953 132.5942 0010599 186.2827 173.8225 14.29823413212157  
 A0-16  
 1 20439U 90005D 94045.75388848 .000000076 00000-0 46533-4 0 7643  
 2 20439 98.6038 133.2765 0010934 188.0238 172.0765 14.29879034212109  
 D0-17  
 1 20440U 90005E 94045.23034447 .000000070 00000-0 44132-4 0 7637  
 2 20440 98.6058 133.0443 0010965 189.4352 170.6623 14.30017107212047  
 W0-18  
 1 20441U 90005F 94045.76328214 .000000059 00000-0 39826-4 0 7657  
 2 20441 98.6054 133.5798 0011505 188.3662 171.7330 14.29993172212124  
 L0-19  
 1 20442U 90005G 94045.74960276 .000000064 00000-0 41740-4 0 7638  
 2 20442 98.6048 133.7927 0011921 187.6862 172.4137 14.30087334212130  
 U0-22  
 1 21575U 91050B 94046.13690949 .000000113 00000-0 52716-4 0 4657  
 2 21575 98.4466 123.0432 0007219 301.1937 58.8542 14.36890610135556  
 K0-23  
 1 22077U 92052B 94046.40390865 -.000000037 00000-0 10000-3 0 3601  
 2 22077 66.0810 174.9628 0009874 317.5713 42.4539 12.86284764 71129  
 A0-27  
 1 22825U 93061C 94046.21545311 .000000058 00000-0 41460-4 0 2617  
 2 22825 98.6626 123.1936 0008062 202.2052 157.8775 14.27607193 20284  
 I0-26  
 1 22826U 93061D 94042.21058899 .000000053 00000-0 39268-4 0 2612  
 2 22826 98.6649 119.2441 0008529 216.1988 143.8612 14.27708814 19710  
 K0-25  
 1 22830U 93061H 94045.75293537 .000000053 00000-0 38624-4 0 2647



2 22830 98.5674 121.3071 0011406 172.0390 188.0975 14.28033386 20227  
 NOAA-9  
 1 15427U 84123 A 94061.01035146 -.00000010 00000-0 00000 0 0 7301  
 2 15427 099.0595 110.1740 0015036 161.5961 198.6262 14.13593205475201  
 NOAA-10  
 1 16969U 86073 A 94060.99970033 .00000206 00000-0 88281-4 0 6282  
 2 16969 098.5075 073.2639 0013002 284.1537 075.8728 14.24869344387340  
 MET-2/17  
 1 18820U 88005A 94046.33979358 .00000030 00000-0 12997-4 0 2628  
 2 18820 82.5401 5.5070 0016642 157.5160 202.6730 13.84706663305497  
 MET-3/2  
 1 19336U 88064A 94039.99790931 .00000051 00000-0 10000-3 0 2623  
 2 19336 82.5380 54.3969 0015730 222.0779 137.9138 13.16964807266383  
 NOAA-11  
 1 19531U 88089 A 94061.00386846 .00000354 00000-0 19022-3 0 5352  
 2 19531 099.1626 047.3332 0012104 074.4598 285.8484 14.12964394280081  
 MET-2/18  
 1 19851U 89018 A 94053.01405594 -.00000008 00000-0 00000 0 0 2631  
 2 19851 082.5171 235.7306 0014002 188.3029 171.8434 13.84356715251755  
 MET-3/3  
 1 20305U 89086 A 94052.02689974 .00000000 00000-0 99999-4 0 9894  
 2 20305 082.5516 350.2887 0006980 212.2401 147.8826 13.04401818207754  
 MET-2/19  
 1 20670U 90057A 94040.79306496 .00000024 00000-0 79036-5 0 7621  
 2 20670 82.5504 309.6649 0016176 139.0978 221.1403 13.84188455182995  
 FY-1/2  
 1 20788U 90081 A 94061.01586847 .00000377 00000-0 25065-3 0 9079  
 2 20788 098.8380 084.5670 0013935 308.8594 051.1838 14.01322350178699  
 MET-2/20  
 1 20826U 90086 A 94060.99109242 -.00000006 00000-0 00000 0 0 7776  
 2 20826 082.5222 231.2554 0013686 351.3644 008.7815 13.83573202172938  
 MET-3/4  
 1 21232U 91030A 94044.59202931 .00000051 00000-0 10000-3 0 6701  
 2 21232 82.5391 256.9674 0013673 130.9218 229.3059 13.16460015135098  
 NOAA-12  
 1 21263U 91032 A 94061.06053707 .00000214 00000-0 96445-4 0 9402  
 2 21263 098.6272 091.1459 0012968 186.5273 173.6274 14.22374247145306  
 MET-3/5  
 1 21655U 91056 A 94060.92535554 -.00000471 00000-0 99999-4 0 6828  
 2 21655 082.5586 192.4818 0013979 105.6381 254.6811 13.16827204122344  
 MET-2/21  
 1 22782U 93055 A 94061.07699856 .00000075 00000-0 68856-4 0 2771  
 2 22782 082.5414 291.3236 0022793 163.8377 196.4020 13.83001482025280  
 POSAT  
 1 22829U 93061G 94045.75585944 .00000072 00000-0 46760-4 0 2541  
 2 22829 98.6608 122.7699 0009759 191.0097 169.0872 14.28003980 20229  
 MIR  
 1 16609U 86017 A 94061.02012332 .00012762 00000-0 15107-3 0 1545

2 16609 051.6205 003.6927 0004649 015.8866 344.2953 15.60576251459339  
 HUBBLE  
 1 20580U 90037 B 94060.95287285 .00000486 00000-0 48620-4 0 4525  
 2 20580 028.4689 204.7466 0006400 049.7311 310.4334 14.90500352013379  
 GRO  
 1 21225U 91027 B 94056.01798028 .00004590 00000-0 11038-3 0 670  
 2 21225 028.4620 290.4640 0003856 037.8429 322.2943 15.40194914039629  
 UARS  
 1 21701U 91063 B 94050.07315151 .00003162 00000-0 27654-3 0 4793  
 2 21701 056.9834 272.3681 0002165 100.1172 260.0857 14.96377326133253  
 /EX

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 Date: 4 Mar 94 13:36:00 GMT  
 From: news-mail-gateway@ucsd.edu  
 Subject: ORBS\$063.MICRO.AMSAT  
 To: info-hams@ucsd.edu

SB KEPS @ AMSAT \$ORBS-063.D  
 Orbital Elements 063.MICROS

HR AMSAT ORBITAL ELEMENTS FOR THE MICROSATS  
 FROM WA5QGD FORT WORTH, TX March 4, 1994  
 BID: \$ORBS-063.D  
 TO ALL RADIO AMATEURS BT

Satelllite: UO-14  
 Catalog number: 20437  
 Epoch time: 94046.18347456  
 Element set: 964  
 Inclination: 98.5953 deg  
 RA of node: 132.5942 deg  
 Eccentricity: 0.0010599  
 Arg of perigee: 186.2827 deg  
 Mean anomaly: 173.8225 deg  
 Mean motion: 14.29823413 rev/day  
 Decay rate: 6.0e-07 rev/day^2  
 Epoch rev: 21215  
 Checksum: 317

Satelllite: AO-16  
 Catalog number: 20439  
 Epoch time: 94045.75388848  
 Element set: 764  
 Inclination: 98.6038 deg  
 RA of node: 133.2765 deg  
 Eccentricity: 0.0010934

Arg of perigee: 188.0238 deg  
Mean anomaly: 172.0765 deg  
Mean motion: 14.29879034 rev/day  
Decay rate: 7.6e-07 rev/day^2  
Epoch rev: 21210  
Checksum: 328

Satellite: D0-17

Catalog number: 20440  
Epoch time: 94045.23034447  
Element set: 763  
Inclination: 98.6058 deg  
RA of node: 133.0443 deg  
Eccentricity: 0.0010965  
Arg of perigee: 189.4352 deg  
Mean anomaly: 170.6623 deg  
Mean motion: 14.30017107 rev/day  
Decay rate: 7.0e-07 rev/day^2  
Epoch rev: 21204  
Checksum: 266

Satellite: W0-18

Catalog number: 20441  
Epoch time: 94045.76328214  
Element set: 765  
Inclination: 98.6054 deg  
RA of node: 133.5798 deg  
Eccentricity: 0.0011505  
Arg of perigee: 188.3662 deg  
Mean anomaly: 171.7330 deg  
Mean motion: 14.29993172 rev/day  
Decay rate: 5.9e-07 rev/day^2  
Epoch rev: 21212  
Checksum: 309

Satellite: L0-19

Catalog number: 20442  
Epoch time: 94045.74960276  
Element set: 763  
Inclination: 98.6048 deg  
RA of node: 133.7927 deg  
Eccentricity: 0.0011921  
Arg of perigee: 187.6862 deg  
Mean anomaly: 172.4137 deg  
Mean motion: 14.30087334 rev/day  
Decay rate: 6.4e-07 rev/day^2  
Epoch rev: 21213  
Checksum: 308

Satellite: UO-22

Catalog number: 21575

Epoch time: 94046.13690949

Element set: 465

Inclination: 98.4466 deg

RA of node: 123.0432 deg

Eccentricity: 0.0007219

Arg of perigee: 301.1937 deg

Mean anomaly: 58.8542 deg

Mean motion: 14.36890610 rev/day

Decay rate: 1.13e-06 rev/day<sup>2</sup>

Epoch rev: 13555

Checksum: 302

Satellite: K0-23

Catalog number: 22077

Epoch time: 94046.40390865

Element set: 360

Inclination: 66.0810 deg

RA of node: 174.9628 deg

Eccentricity: 0.0009874

Arg of perigee: 317.5713 deg

Mean anomaly: 42.4539 deg

Mean motion: 12.86284764 rev/day

Decay rate: -3.7e-07 rev/day<sup>2</sup>

Epoch rev: 7112

Checksum: 311

Satellite: A0-27

Catalog number: 22825

Epoch time: 94046.21545311

Element set: 261

Inclination: 98.6626 deg

RA of node: 123.1936 deg

Eccentricity: 0.0008062

Arg of perigee: 202.2052 deg

Mean anomaly: 157.8775 deg

Mean motion: 14.27607193 rev/day

Decay rate: 5.8e-07 rev/day<sup>2</sup>

Epoch rev: 2028

Checksum: 289

Satellite: IO-26

Catalog number: 22826

Epoch time: 94042.21058899

Element set: 261

Inclination: 98.6649 deg

RA of node: 119.2441 deg  
Eccentricity: 0.0008529  
Arg of perigee: 216.1988 deg  
Mean anomaly: 143.8612 deg  
Mean motion: 14.27708814 rev/day  
Decay rate: 5.3e-07 rev/day^2  
Epoch rev: 1971  
Checksum: 325

Satellite: K0-25  
Catalog number: 22830  
Epoch time: 94045.75293537  
Element set: 264  
Inclination: 98.5674 deg  
RA of node: 121.3071 deg  
Eccentricity: 0.0011406  
Arg of perigee: 172.0390 deg  
Mean anomaly: 188.0975 deg  
Mean motion: 14.28033386 rev/day  
Decay rate: 5.3e-07 rev/day^2  
Epoch rev: 2022  
Checksum: 286

/EX

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Date: 4 Mar 94 13:41:00 GMT  
From: news-mail-gateway@ucsd.edu  
Subject: ORBS\$063.WEATH.AMSAT  
To: info-hams@ucsd.edu

SB KEPS @ AMSAT \$ORBS-063.W  
Orbital Elements 063.WEATHER

HR AMSAT ORBITAL ELEMENTS FOR WEATHER SATELLITES  
FROM WA5QGD FORT WORTH, TX March 4, 1994  
BID: \$ORBS-063.W  
TO ALL RADIO AMATEURS BT

Satellite: NOAA-9  
Catalog number: 15427  
Epoch time: 94061.01035146  
Element set: 730  
Inclination: 099.0595 deg  
RA of node: 110.1740 deg  
Eccentricity: 0.0015036  
Arg of perigee: 161.5961 deg

Mean anomaly: 198.6262 deg  
Mean motion: 14.13593205 rev/day  
Decay rate: -1.0e-07 rev/day^2  
Epoch rev: 47520  
Checksum: 271

Satellite: NOAA-10  
Catalog number: 16969  
Epoch time: 94060.99970033  
Element set: 628  
Inclination: 098.5075 deg  
RA of node: 073.2639 deg  
Eccentricity: 0.0013002  
Arg of perigee: 284.1537 deg  
Mean anomaly: 075.8728 deg  
Mean motion: 14.24869344 rev/day  
Decay rate: 2.06e-06 rev/day^2  
Epoch rev: 38734  
Checksum: 332

Satellite: MET-2/17  
Catalog number: 18820  
Epoch time: 94046.33979358  
Element set: 262  
Inclination: 82.5401 deg  
RA of node: 5.5070 deg  
Eccentricity: 0.0016642  
Arg of perigee: 157.5160 deg  
Mean anomaly: 202.6730 deg  
Mean motion: 13.84706663 rev/day  
Decay rate: 3.0e-07 rev/day^2  
Epoch rev: 30549  
Checksum: 289

Satellite: MET-3/2  
Catalog number: 19336  
Epoch time: 94039.99790931  
Element set: 262  
Inclination: 82.5380 deg  
RA of node: 54.3969 deg  
Eccentricity: 0.0015730  
Arg of perigee: 222.0779 deg  
Mean anomaly: 137.9138 deg  
Mean motion: 13.16964807 rev/day  
Decay rate: 5.1e-07 rev/day^2  
Epoch rev: 26638  
Checksum: 335

Satellite: NOAA-11  
Catalog number: 19531  
Epoch time: 94061.00386846  
Element set: 535  
Inclination: 099.1626 deg  
RA of node: 047.3332 deg  
Eccentricity: 0.0012104  
Arg of perigee: 074.4598 deg  
Mean anomaly: 285.8484 deg  
Mean motion: 14.12964394 rev/day  
Decay rate: 3.54e-06 rev/day^2  
Epoch rev: 28008  
Checksum: 311

Satellite: MET-2/18  
Catalog number: 19851  
Epoch time: 94053.01405594  
Element set: 263  
Inclination: 082.5171 deg  
RA of node: 235.7306 deg  
Eccentricity: 0.0014002  
Arg of perigee: 188.3029 deg  
Mean anomaly: 171.8434 deg  
Mean motion: 13.84356715 rev/day  
Decay rate: -8.0e-08 rev/day^2  
Epoch rev: 25175  
Checksum: 295

Satellite: MET-3/3  
Catalog number: 20305  
Epoch time: 94052.02689974  
Element set: 989  
Inclination: 082.5516 deg  
RA of node: 350.2887 deg  
Eccentricity: 0.0006980  
Arg of perigee: 212.2401 deg  
Mean anomaly: 147.8826 deg  
Mean motion: 13.04401818 rev/day  
Decay rate: .00000000 rev/day^2  
Epoch rev: 20775  
Checksum: 292

Satellite: MET-2/19  
Catalog number: 20670  
Epoch time: 94040.79306496  
Element set: 762  
Inclination: 82.5504 deg  
RA of node: 309.6649 deg

Eccentricity: 0.0016176  
Arg of perigee: 139.0978 deg  
Mean anomaly: 221.1403 deg  
Mean motion: 13.84188455 rev/day  
Decay rate: 2.4e-07 rev/day^2  
Epoch rev: 18299  
Checksum: 328

Satellite: FY-1/2  
Catalog number: 20788  
Epoch time: 94061.01586847  
Element set: 907  
Inclination: 098.8380 deg  
RA of node: 084.5670 deg  
Eccentricity: 0.0013935  
Arg of perigee: 308.8594 deg  
Mean anomaly: 051.1838 deg  
Mean motion: 14.01322350 rev/day  
Decay rate: 3.77e-06 rev/day^2  
Epoch rev: 17869  
Checksum: 332

Satellite: MET-2/20  
Catalog number: 20826  
Epoch time: 94060.99109242  
Element set: 777  
Inclination: 082.5222 deg  
RA of node: 231.2554 deg  
Eccentricity: 0.0013686  
Arg of perigee: 351.3644 deg  
Mean anomaly: 008.7815 deg  
Mean motion: 13.83573202 rev/day  
Decay rate: -6.0e-08 rev/day^2  
Epoch rev: 17293  
Checksum: 295

Satellite: MET-3/4  
Catalog number: 21232  
Epoch time: 94044.59202931  
Element set: 670  
Inclination: 82.5391 deg  
RA of node: 256.9674 deg  
Eccentricity: 0.0013673  
Arg of perigee: 130.9218 deg  
Mean anomaly: 229.3059 deg  
Mean motion: 13.16460015 rev/day  
Decay rate: 5.1e-07 rev/day^2  
Epoch rev: 13509



Checksum: 285

Satellite: NOAA-12

Catalog number: 21263

Epoch time: 94061.06053707

Element set: 940

Inclination: 098.6272 deg

RA of node: 091.1459 deg

Eccentricity: 0.0012968

Arg of perigee: 186.5273 deg

Mean anomaly: 173.6274 deg

Mean motion: 14.22374247 rev/day

Decay rate: 2.14e-06 rev/day<sup>2</sup>

Epoch rev: 14530

Checksum: 295

Satellite: MET-3/5

Catalog number: 21655

Epoch time: 94060.92535554

Element set: 682

Inclination: 082.5586 deg

RA of node: 192.4818 deg

Eccentricity: 0.0013979

Arg of perigee: 105.6381 deg

Mean anomaly: 254.6811 deg

Mean motion: 13.16827204 rev/day

Decay rate: -4.71e-06 rev/day<sup>2</sup>

Epoch rev: 12234

Checksum: 316

Satellite: MET-2/21

Catalog number: 22782

Epoch time: 94061.07699856

Element set: 277

Inclination: 082.5414 deg

RA of node: 291.3236 deg

Eccentricity: 0.0022793

Arg of perigee: 163.8377 deg

Mean anomaly: 196.4020 deg

Mean motion: 13.83001482 rev/day

Decay rate: 7.5e-07 rev/day<sup>2</sup>

Epoch rev: 02528

Checksum: 312

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Date: Fri, 04 Mar 94 07:07:38 GMT  
From: news.acns.nwu.edu!math.ohio-state.edu!howland.reston.ans.net!  
europa.eng.gtefsd.com!library.ucla.edu!csulb.edu!csus.edu!netcom.com!netcomsv!  
skyld!jangus@network.ucsd.edu  
Subject: second letter  
To: info-hams@ucsd.edu

In article <CM4CtL.FKG@ucdavis.edu> ez006683@chip.ucdavis.edu writes:

>  
> Conway Yee (yee@mipg.upenn.edu) wrote:  
  
> : I hope that this clarifies my last letter, and that there  
> : will not be any further misunderstanding proliferated on the  
> : Internet.

The above snippet is a quote from the letter from the ARRL, not Conway.

> Misundertanding proliferating on the internet? NEVER! ;-]

It's starting already....

> (ps. I know this isn't the internet)

It's not?

> cheers,  
> Dan  
> --

Amateur: WA6FWI@WA6FWI.#SOCA.CA.USA.NA		"You have a flair for adding
Internet: jangus@skyld.grendel.com		a fanciful dimension to any
US Mail: PO Box 4425 Carson, CA 90749		story."
Phone: 1 (310) 324-6080		Peking Noodle Co.

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End of Info-Hams Digest V94 #239

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